

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
9 February 2006 (09.02.2006)

PCT

(10) International Publication Number
WO 2006/014189 A3

(51) International Patent Classification:
B63H 11/00 (2006.01)

(21) International Application Number:
PCT/US2005/008474

(22) International Filing Date: 15 March 2005 (15.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/801,705 17 March 2004 (17.03.2004) US
60/606,905 3 September 2004 (03.09.2004) US

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— of inventorship (Rule 4.17(iv))

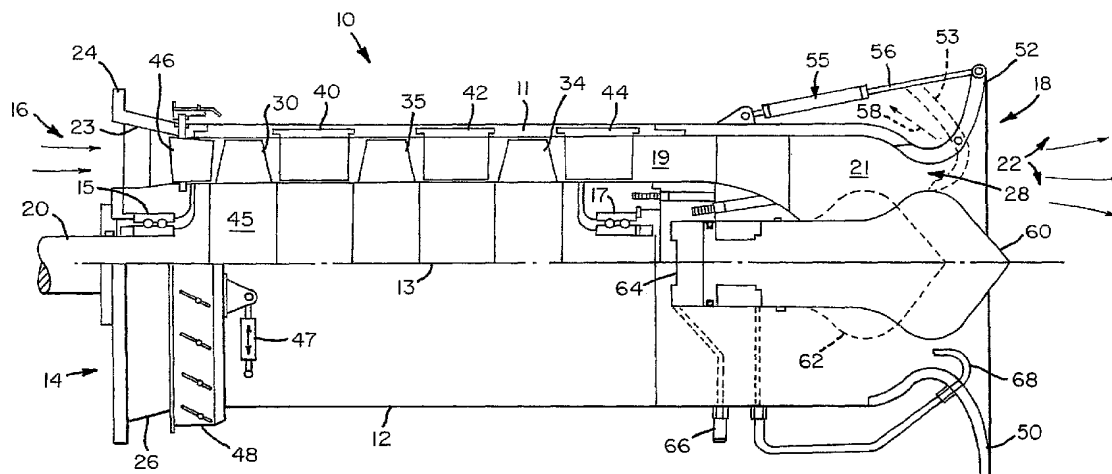
Published:

— with international search report

(88) Date of publication of the international search report:
8 September 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: AXIAL FLOW PUMP AND MARINE PROPULSION DEVICE



(57) Abstract: A mechanically reconfigurable marine propulsion device (10) that adapts to engine torque and/or vessel speed thereby providing improved propulsive efficiency and performance. The axial flow propulsion device has two or more stages each having an impeller section and a stator section. Stator vanes (40, 42, 44) and/or the pumping chamber (19) provide a flow diffusion that generates increased hydrostatic pressure from ram pressure recovered from high velocity working fluid which, due to reduced fluid velocity and increased hydrostatic pressure, lowers cavitation events and frictional losses within the propulsion device. Optionally, variable-pitch vanes (80, 82) in the stator section control the amount of ram pressure imparted to the working fluid. Also optionally, variable-pitch inlet guide vanes (46) control the whirl angle and/or mass flow rate of incoming fluid independently of rotor or vessel speed. A set of fixed or variable exit guide vanes aft of the pumping chamber provides flow straightening.

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